



## REMARKS

### I. Status of the Claims

Claims 1-35 and 72-89 are pending in this application. The claims are not amended herein.

### II. Rejections Under 35 U.S.C. § 103(a)

Claims 1-35 and 72-89 are rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,410,005 to Galleguillos et al. ("Galleguillos"), or U.S. Patent No. 6,663,855 to Frechet et al. ("Frechet '855"), or U.S. Patent No. 6,685,925 to Frechet et al. ("Frechet '925"), or U.S. Patent No. 6,197,883 to Schimmel et al. ("Schimmel"), or U.S. Patent No. 6,153,206 to Anton et al ("Anton"). See Office Action at 3. Applicants respectfully traverse these rejections for at least the reason that the Examiner has not established a *prima facie* case of obviousness.

To prove a *prima facie* case of obviousness, the Office must show that the cited references would have provided to one of ordinary skill in the art some suggestion or motivation to combine or modify their teachings in an effort to achieve all of the limitations of the claimed invention, with a reasonable expectation of success. See MPEP § 2143. These criteria have not and cannot be met here with respect to the present claims. In particular, the references do not teach or suggest a triblock polymer as claimed, comprising an intermediate block comprising at least one constituent monomer of the at least one first block and at least one constituent monomer of the at least one second block. That is, the present claims relate to a triblock polymer A-B-C,

wherein the intermediate block B comprises at least one monomer of the first block A, and at least one monomer of the second block, C.

Further, the references do not disclose or suggest a block polymer as claimed with a polydispersity index of greater than 2. Each of the cited references is discussed in more detail below.

### **Galleguillos**

In the Office Action, the Examiner asserts that “[a]bsent of specific compositional and architectural details defined for the instant intermediate block, prior art -B-X-X-A- linkages in structures 1 and 2 fall within the scope of the instant intermediate block defined in the present claims.” Office Action at 3-4. Applicants respectfully disagree.

Galleguillos teaches a copolymer “consisting essentially of a hard, hydrophilic block...and a soft, more hydrophobic block...” See col. 4, ll. 20-24. The A-Blocks and B-Blocks are covalently or chemically attached through the chain branching agent X. See *id.* at col. 5, ll. 21-22. Galleguillos nowhere suggests the presence of a third block, and in fact, teaches away from such a modification when describing the copolymer as “consisting essentially of” two blocks.

Furthermore, contrary to the Examiner’s assertion that there are no specific compositional and architectural details defined for the instant intermediate block, the claims, e.g., claim 1, recite that the intermediate block comprises “at least one constituent monomer of the at least one first block and at least one constituent monomer of the at least one second block.” Galleguillos nowhere mentions or suggests an intermediate block, much less one comprising at least one constituent monomer of the first and second blocks as claimed. At best, Galleguillos directs the skilled artisan to

choose the chain branching agent X such that it is highly reactive and polymerizes faster. See col. 6, ll. 21-25.

Moreover, with respect to Galleguillos, although molecular weight is mentioned, e.g., at col. 5, the disclosure does not specify number average or weight average molecular weight for the block copolymer, so the polydispersity index cannot be determined. In the absence of any teaching in Galleguillos with respect to polydispersity, no guidance--besides that provided in Applicants' own disclosure--is provided to the skilled artisan as to the desirability of any particularly preferred polydispersity index. Accordingly, the Examiner has not established a prima facie showing of obviousness with respect to the pending claims and Applicants respectfully request that this rejection be withdrawn.

#### **Frechet '855 and '925**

Frechet '855 and '925 disclose a block copolymer comprising a core polymer and two or more flanking polymers. See abstracts. The Examiner contends that Frechet teaches "Mn and Mw of the respective core and flanking polymers within the claimed range. A molar ratio of the core polymer to the flanking polymer from 1:10 to 10:1 is further suggested." Office Action at 5 (citing Frechet at col. 5, lines 1-15). Applicants respectfully disagree.

It appears that the Examiner is incorrectly defining the polydispersity index as the ratio of the core polymers to the flanking polymers. In addition, it appears that the Examiner is equating the recited Mw and Mn values for the core and flanking polymers with the Mw and Mn values suggested for the entire block polymer of the present disclosure. According to the present claims, "the block polymer has a polydispersity

index I of greater than 2” (emphasis added). See, e.g., claim 1. Further, according to the present disclosure, the polydispersity index is “equal to the ratio of the weight-average mass  $M_w$  to the number-average mass  $M_n$ ” of the entire polymer. See as-filed specification at para [0047]. Thus, both of the Examiner’s positions are incorrect and neither of the Frechet references provide any guidance to the skilled artisan to arrive at a block polymer having a polydispersity index of greater than 2 as presently claimed. As such, the Frechet references, either alone or in combination, do not teach or suggest each and every element of the claims and cannot serve as a proper basis for an obviousness rejection. Applicants respectfully request that the Examiner withdraw these rejections.

#### **Schimmel**

Schimmel discloses a block copolymer comprising a first block and a second block, wherein the monomers of the second block have a  $T_g$  of at least 20°C greater than that of the monomers of the first block. See abstract. The polymers may be produced by an ATRP method, which provides narrow molecular weight distributions, i.e., polydispersity indices of less than 2.5. See col. 8, l. 59 - col. 9, l. 3. The Examiner asserts that Example A is a triblock polymer “which meets the requirement of the present block copolymer as defined in the present claims.” Office Action at 7. Applicants respectfully disagree. Specifically, Applicants note that the triblock polymer of Example A has a polydispersity index of 1.8. See col. 24, ll. 47-49. Moreover, all polymers described in Examples A-D have polydispersity indices of less than 2. Only the polymer of Example E, a comparative example, has a polydispersity index of greater than 2. Thus, Schimmel actually teaches narrow molecular weight distributions and low

polydispersity indices, thereby teaching away from the block polymer of the presently pending claims. As such, Schimmel cannot serve as a proper basis for an obviousness rejection and Applicants respectfully request that this rejection be withdrawn.

**Anton**

Anton discloses a polymer comprising a first repeat unit and a second repeat unit, wherein the first and second repeat units have different glass transition temperatures  $T_g$ . See abstract. The polymer may be in the form of a block polymer. See table in col. 4. However, Anton, at best, discloses a diblock polymer. Anton nowhere mentions or suggests a third block or an intermediate block, much less an intermediate block comprising at least one constituent monomer of the first and second blocks as presently claimed. Moreover, Anton nowhere defines the polydispersity index or number average or weight average molecular weight of the polymer. Thus, Anton is completely silent with respect to at least two elements of the presently pending claims. As such, Anton cannot and does not provide guidance to the skilled artisan to modify the polymer of Anton to arrive at the presently claimed block polymer. Accordingly, the Examiner has not established a prima facie showing of obviousness with respect to the pending claims and Applicants respectfully request that this rejection be withdrawn.

### III. Conclusion

In view of the above remarks, Applicants request reconsideration of the application, and the timely allowance of the pending claims.

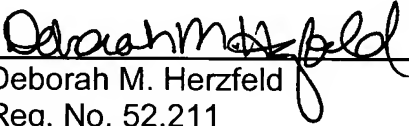
If the Examiner believes a telephone conference could be useful in resolving any of the outstanding issues, he is respectfully urged to contact Applicants' undersigned counsel at 202-408-4368.

If there is any fee due in connection with the filing of this Statement, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: February 12, 2007

By:   
Deborah M. Herzfeld  
Reg. No. 52,211